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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/627,787

07/27/2000

Eugen Uhlmann

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03/24/2006

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EXAMINER

SCHNIZER, RICHARD A

ART UNIT

PAPER NUMBER

1635

DATE MAILED: 03/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/627,787	<b>Applicant(s)</b> UHLMANN ET AL.	
	<b>Examiner</b> Richard Schnizer, Ph. D	<b>Art Unit</b> 1635	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 8-39 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9 and 37-39 is/are allowed.
- 6) ☒ Claim(s) 8,10-32,34 and 36 is/are rejected.
- 7) ☐ Claim(s) 33 and 35 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

An amendment was received and entered on 12/27/05. Claims 37-39 were added as requested.

Claims 8-39 are pending and under consideration in this Office Action.

This Action is Non-Final.

### ***Rejections Withdrawn***

All previous rejections are withdrawn in view of Applicant's amendments.

### ***Claim Objections***

Claim 18 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 18 depends from claim 17, and requires that the cell of claim 17 is either prokaryotic or eukaryotic. This fails to further limit claim 17 because there is no cell which is neither prokaryotic nor eukaryotic.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 8, 10-12, 15-19, 22-32, 34, and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Guzaev et al (US Patent 6,335,434).

Guzaev taught conjugates of nucleotides, oligonucleotides, modified oligonucleotides, polynucleotides up to about 50 bases, and other structures, see entire document, including claims. Four representative structures are given below. R1 of the instant claims is considered to be the isopropyl group at the right hand terminus of each molecule. The isopropyl group is linked to the aryl group by an amide linkage, so instant 'Y' = O, and instant 'X' = NH. Continuing to read right to left, the aryl group begins immediately after the amide NH, and can be considered to end either at the bond connecting the benzyl group to the carbonyl carbon (denoted '1' below), or at the bond between the branch point carbon and the adjacent carbonyl carbon (denoted '2' below). Instant R3 is considered to be either of the carbonyls at '1' or '2' above. The instant molecule to be delivered is considered to be everything to the left of these carbonyls, and can range in molecular weight from over 500 Da (first structure), to between 350 and 500 Da (second, third and fourth structures). The conjugates are appended to one or more sites on an oligonucleotide, including 2', 3', 5', nucleobase, and internucleotide linkages (see abstract). The conjugates are prepared by combining a compound comprising the aryl radical, and a compound comprising the molecule to be delivered and a reactive amino group. See e.g. Figs. 6, 7, or 8b.

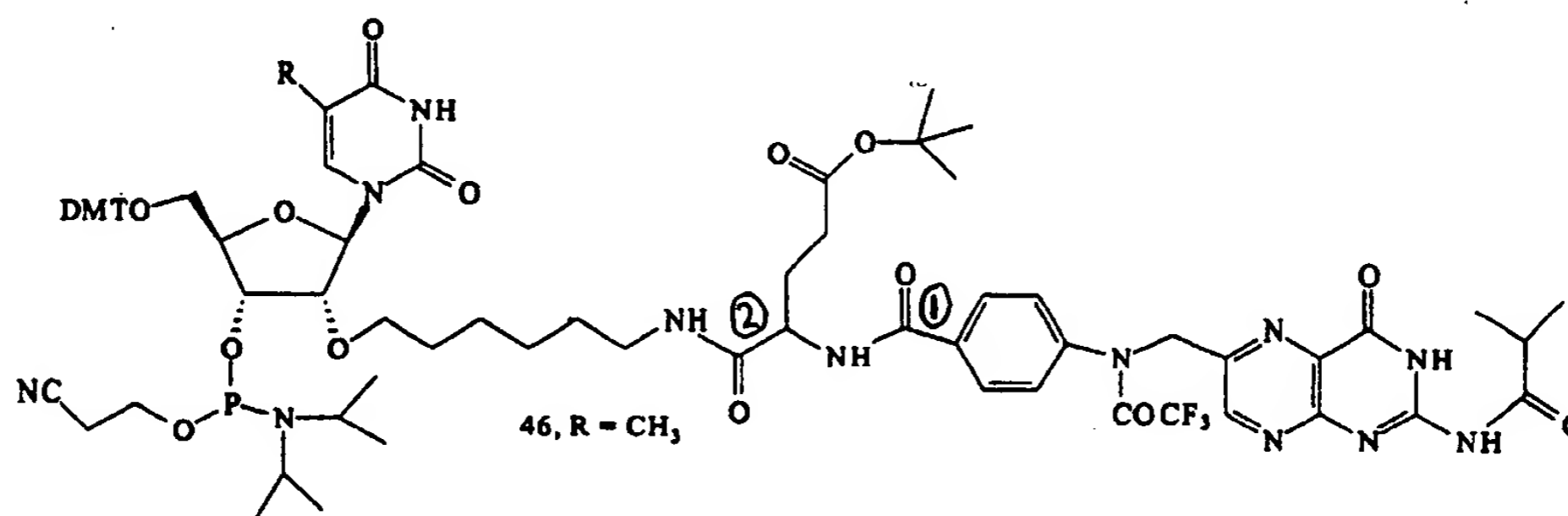
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Guzaev also taught a method of delivering the compounds across a membrane into a cell, contemplating delivery to bacteria, yeast, and warm blooded animals and the compositions may comprise additives such as inert carriers (see column 72, lines 36-41).

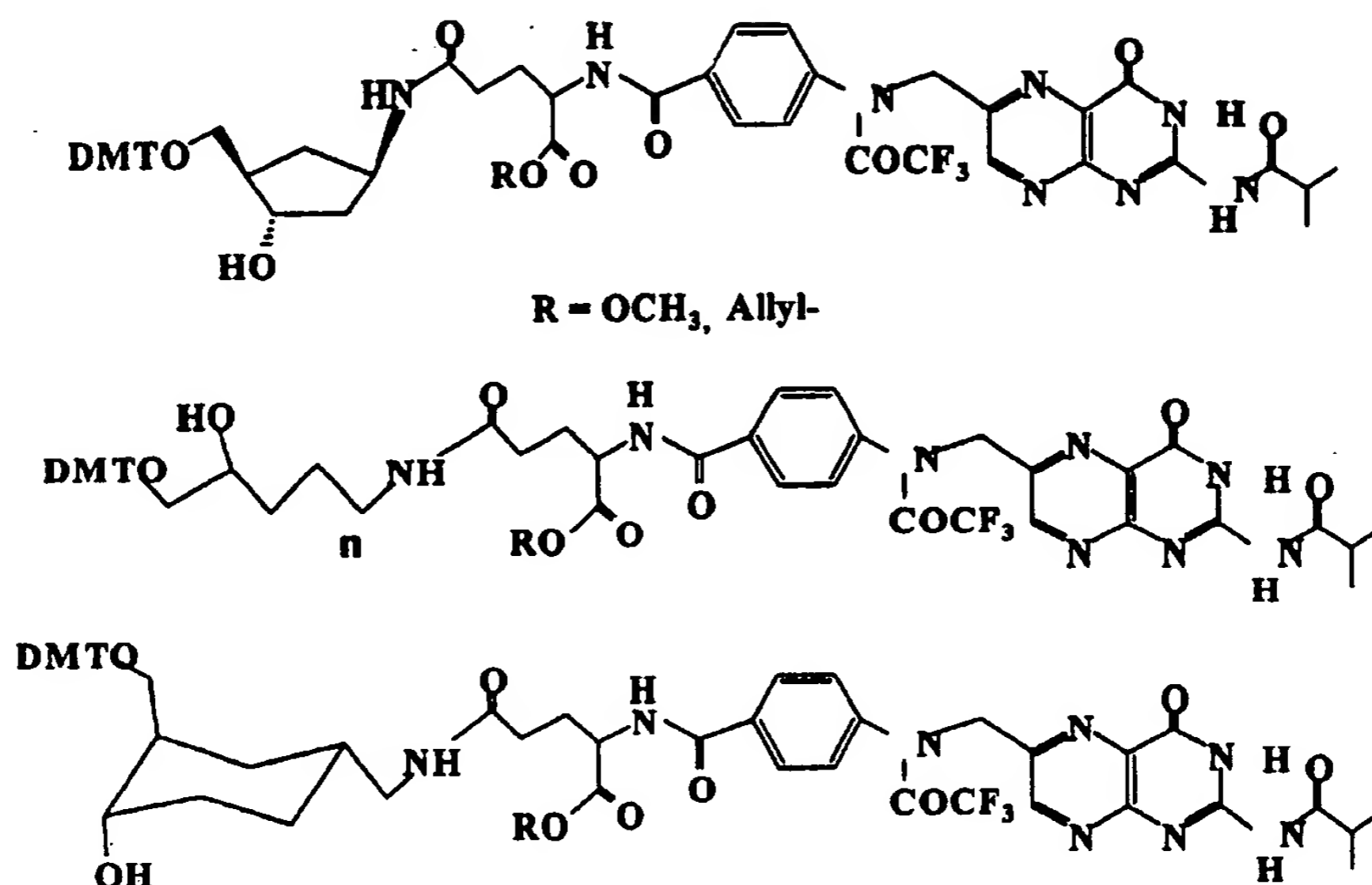
Claims 24-26 are included in the rejection because Guzaev taught their structural limitations.

Regarding claim 36, R1 may comprise an aryl radical. See e.g. claim 1 at column 111, lines 1-10, description of 'R<sub>6</sub>', at column 11, line 55, and definition of amino protecting group at column 71, lines 22-35 which describes various aryl-containing groups.

From Fig. 7 of Guzaev:



From Fig. 20 of Guzaev:



### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8, 11, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guzaev et al (US Patent 6,335,434).

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Guzaev taught conjugates comprising aryl groups and a molecule to be delivered, as discussed above. The conjugates are prepared by combining a compound comprising the aryl radical, and a compound comprising the molecule to be delivered and a reactive amino group. See e.g. Figs. 6, 7, or 8b.

Guzaev was silent as to the pH at which the reaction was carried out, however, the pH at which a reaction is carried out is considered to be a result effective variable that is routinely optimized. Absent evidence to the contrary, it would have been obvious to perform the reaction at pH 7.0.

Thus the invention as a whole was prima facie obvious.

Claims 8 and 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guzaev et al (US Patent 6,335,434) in view of Tanaka et al (J. Clin. Invest. 99(2): 239-247, 1997).

Guzaev taught conjugates comprising aryl groups and a molecule to be delivered, as discussed above. Guzaev also taught a method of delivering the compounds across a membrane into a cell, contemplating delivery to bacteria, yeast, and warm blooded animals and the compositions may comprise additives such as inert carriers (see column 72, lines 36-41).

Guzaev did not explicitly teach delivery to a mammalian cell, human, cell, or a tumor cell.

Tanaka taught delivery of oligonucleotides to human tumor cells implanted subcutaneously in mice. See abstract; page 240, column 1, first full paragraph; page

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241, column 1, first full paragraph; page 244, column 2, first full paragraph, and Fig. 7 on page 244.

It would have been obvious to one of ordinary skill in the art to modify the oligonucleotides of Tanaka with the conjugates of Guzaev because Guzaev taught that the conjugates improved cellular uptake. See column 72, lines 36-38. Thus it would have been prima facie obvious to deliver conjugates according to Guzaev to human tumor cells.

### ***Conclusion***

Claims 9 and 37-39 are allowed. Claims 33 and 35 are objected to the extent that they depend from claim 8, which is a rejected claim. These claims would be allowable if rewritten in independent form incorporating all of the limitations from which they depend.

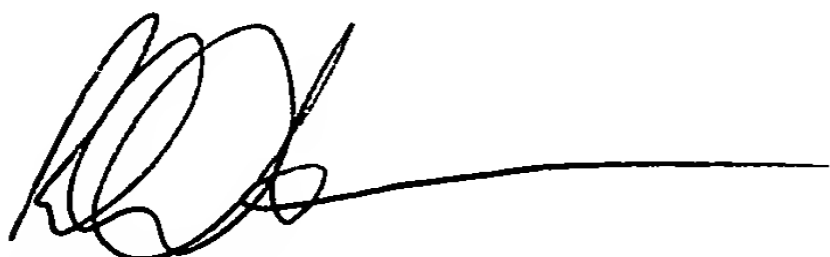
Any inquiry concerning this communication or earlier communications from the examiner(s) should be directed to Richard Schnizer, whose telephone number is 571-272-0762. The examiner can normally be reached Monday through Friday between the hours of 6:00 AM and 3:30. The examiner is off on alternate Fridays, but is sometimes in the office anyway.

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Andrew Wang, can be reached at (571) 272-0811. The official central fax number is 571-273-8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

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For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

A handwritten signature in black ink, consisting of a series of loops and a long horizontal stroke extending to the right.

Richard Schnizer, Ph.D.  
Primary Examiner  
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